

## SECTION 05 30 00

### METAL DECKING

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Floor and Roof Decking
- B. Accessories
- C. Galvanizing Repair Materials

##### 1.02 MEASUREMENT AND PAYMENT

- A. General: Measurement and payment for metal decking will be either by the lump-sum method or by the unit-price method as determined by the listing of the bid item for metal decking indicated in the Bid Schedule of the Bid Form.
- B. Lump Sum: If the Bid Schedule indicates a lump sum for metal decking, the lump-sum method of measurement and payment will be in accordance with Section 01 20 00 - Price and Payment Procedures, Article 1.03.
- C. Unit Price: If the Bid Schedule indicates a unit price for metal decking, the unit-price method of measurement and payment will be as follows:
  - 1. Measurement:
    - a. Metal decking will be measured for payment by the square foot or square yard of each type, installed complete in place.
    - b. Stud shear connectors, accessories and galvanizing repair will not be measured separately for payment; such items will be considered incidental to the metal decking.
  - 2. Payment: Metal decking will be paid for at the indicated Contract unit prices for the computed quantities as determined by the measurement method specified in Article 1.02.C.1.

##### 1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):
  - 1. ASTM A446/A446M Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality
  - 2. ASTM A653/A653M Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - 3. ASTM A780 Practice for Repair of Damaged and Uncoated Areas of Hot-

Dip Galvanized Coatings

B. Steel Deck Institute (SDI):

1. SDI Publication No. 27 Design Manual for Composite Decks, Form Decks, Roof Decks and Cellular Metal Floor Deck with Electrical Distribution

**1.04 REGULATORY REQUIREMENTS:** The regulatory requirements which govern the work of this Section include the following governing code:

California Code of Regulations (CCR), Title 24, Part 2, California Building Code, Chapter 22, "Steel", and State Chapter 22A, "Steel".

**1.05 SUBMITTALS**

- A. General: Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Shop Drawings: Submit detailed Shop Drawings of metal decking, showing grade, size, section profile, and thickness of decking, lapping of decking, locations of welds, and method of attachment.
- C. Product Data: Submit manufacturer's product data and design data of the floor and roof decking, along with applicable accessories.
  1. Submit product data on galvanizing repair materials.
- D. Certification: Submit evidence that the shear capacity of manufacturer's decking has been accepted by the International Conference of Building Officials and that a valid Research Recommendation is on file.

**1.06 QUALITY ASSURANCE**

- A. Qualifications of Welders and Welding Procedures: Refer to Section 05 05 22 - Metal Welding, for requirements.

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. Decking: Floor and roof decking shall be formed of steel sheet conforming to ASTM A446/A446M, Grade as indicated, Coating Designation G90 (1.25 ounce commercial zinc coating) conforming to ASTM A653/A653M. When grade is not indicated, provide minimum Grade B decking. Type of decking units, weight of metal (metal gage), and section profile shall be as indicated.
  1. Provide floor and roof decking with prepunched tabs for ceiling suspension hanger wires where indicated or required for suspended ceilings.

- B. Accessories: Provide cell end closures, column flashings, recessed sump pans, and any other closures and flashings as indicated or required for complete and finished installations and as required to prevent leakage of concrete. Provide cover caps for covering abutting ends where required. Accessories and flashings shall be of the same material as the decking and shall be not lighter than 22 gage. Accessories shall be the decking manufacturer's standard types, galvanized, and shall be provided as follows:
1. Adjusting plates or segments of deck units in locations too narrow to accommodate full-size units.
  2. End closures to close the open ends at openings through the roof, where units terminate at exterior walls, and other locations where required. Closures shall be not lighter than 22 gage.
  3. Closures for closing voids above interior walls and partitions that are perpendicular to the direction of the flutes or corrugations. Closures above typical partitions shall be compressible closed cell neoprene or vinyl synthetic rubber. Closures above fire-resistant interior walls and partitions shall be minimum 20 gage sheet steel galvanized, and shall be provided at both sides of the wall or partition.
  4. Provide sump pans at drains as indicated, fabricated from metal not lighter than 14 gage.
- C. Welding Electrodes: Refer to Section 05 05 22 - Metal Welding, for requirements.
- D. Stud Shear Connectors: Refer to Section 05 12 00 - Structural Steel Framing, for requirements.
- E. Galvanizing Repair Materials: Conform with requirements of ASTM A780. Commercial cold galvanizing compounds manufactured for the purpose will be accepted provided they meet or exceed requirements of ASTM A780.

## **2.02 FABRICATION**

- A. Metal decking and associated metal fabrications shall conform with applicable requirements of the California Building Code, Chapters 22 and 22A, and SDI Publication No. 27.
- B. Fabricate floor and roof decking for composite construction with shear studs or lugs to provide mechanical key for transferring horizontal shear and for preventing vertical separation. Provide decking with shear studs and hold-down lugs to achieve composite action between decking and concrete fill.
- C. Welding and welded connections shall conform with the requirements of Section 05 05 22 - Metal Welding.
- D. Steel decking and associated fabrications shall be prefabricated and preassembled in the factory or shop as far as practicable.
- E. Galvanized metalwork necessitating welding which in any manner removes or damages original galvanizing shall be restored by galvanizing repair in accordance with ASTM A780.

**2.03 INSPECTIONS AND TESTS**

- A. Materials, fabrications, and welding are subject to inspections in the shop conducted by the Engineer. Tests shall be performed by the Contractor, at Contractor's expense, using an approved independent testing laboratory.
- B. Welds shall be inspected by the Contractor as specified in Section 05 05 22 - Metal Welding.

**PART 3 - EXECUTION****3.01 ERECTION AND INSTALLATION**

- A. Install decking as indicated and in accordance with the approved submittals and the decking manufacturer's installation instructions. Provide decking complete, including shaping, cutting, fitting, drilling, welding, flashings, closure strips, closure plates, fasteners, and accessories necessary for a complete and finished installation.
- B. Install decking in straight and continuous rows as far as practicable, with ribs at right angles to structural supporting members. End laps shall occur over bearings only, and where sheets are lapped, end laps shall be not less than 2 inches. Where ends of decking sheets abut without overlapping at supports, each end of decking shall have a minimum bearing of 1 inch on supports.
- C. Stud shear connectors to be installed on metal decking shall be installed directly over webs of beams for single row installations.
- D. Type of welding, number of welds, size of welds, and locations of welds shall be in accordance with the approved Shop Drawings and the decking manufacturer's installation instructions. Welding shall conform with the requirements of Section 05 05 22 - Metal Welding.
- E. Welds shall be cleaned immediately by wire-brushing, and shall be coated with galvanizing repair material before being covered by the succeeding sheet.
- F. Decking shall be weighted at the point of welding with sand bags or other approved method to hold them in firm contact with each other and structural supports.
- G. Secure solid welds where sheets are warped or bent to certain radii and where decking is placed on a slope while supporting members are framed in a straight position.
- H. Button punches or crimping devices may not be substituted for welding.
- I. Holes and openings for services and other projections through decking shall be cut and fitted neatly and accurately and shall be reinforced as necessary for rigidity and load-carrying capacity.

**3.02 GALVANIZING REPAIR**

- A. Galvanized surfaces which have become damaged from welding, handling, or installation shall be repaired immediately after installation with galvanizing repair material in accordance with ASTM A780. Galvanizing repair shall be performed and completed before concrete is placed.

3.03 FIELD QUALITY CONTROL

- A. Field welds and shear studs shall be inspected and approved by the Engineer in writing as specified in Section 05 05 22 - Metal Welding.

3.04 CONCRETE FILL

- A. Concrete fill, where indicated, shall conform with applicable requirements of Section 03 30 00 - Cast-in-Place Concrete, and Section 03 05 15 - Portland Cement Concrete.

**END OF SECTION 05 30 00**